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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.    | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------|------------------|
| 10/731,955  | 12/10/2003  | Clinton B. Carlisle  | 10021.001510 (P0225-1) | 6785             |
| 31894   | 7590        | 01/12/2006           | EXAMINER               |                  |
| OKAMOTO & BENEDICTO, LLP<br>P.O. BOX 641330<br>SAN JOSE, CA 95164 |             |                      | CONSILVIO, MARK J      |                  |
|   |             |                      | ART UNIT               | PAPER NUMBER     |
|   |             |                      | 2872                   |                  |

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/731,955

Applicant(s)

CARLISLE ET AL.

Examiner

Mark Consilvio

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PM

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Status of Claims*

Claims 1-16 were previously rejected and claims 1 and 11 are newly amended. Claims 9 and 10 have been cancelled. Claims 1-8 and 11-16 are currently pending.

### *Response to Arguments*

Applicant's arguments with respect to claims 1-8 and 11-16 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 11-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brophy et al. (US Patent No. 6,275,623).

With respect claim 1, Brophy discloses an apparatus comprising: a polarization diversity module (30) configured to receive an input optical signal and output a first optical output signal and a second optical output signal, the first and second optical output signals having a same polarization state; a diffraction grating (40) configured to decompose the first optical output signal to constituent first set of component signals and the second optical output signal to

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constituent second set of component signals; and a light modulator (50) configured to receive and modulate the first set of component signals and the second set of component signals to a predetermined power level (figs. 1 and 2 and abstract). Brophy does not expressly disclose the first optical output signal and second optical output signal having a beam center-to-center separation of about 2.5mm and a beam diameter of about 1.6mm as measured at about 13.5% peak amplitude of the beam. However, absent a showing of criticality, at the time the invention was made it would have been obvious to one of ordinary skill to choose such beam parameters. One would have been motivated to do this to provide a large enough separation to eliminate cross-talk of the two output beams and to provide an optimized beam diameter that is large enough to allow adequate resolution of the signal without requiring a very large, expensive birefringent crystal and corresponding system.

With respect claim 2, Brophy discloses a collimator (24) configured to direct the optical input signal to a component of the polarization diversity module (30) (fig. 1).

With respect claim 3, Brophy discloses a birefringent crystal (32); and a polarization rotator (34) configured to change a polarization state of an optical output signal of the birefringent crystal such that the first and second optical output signals of the polarization diversity module have the same polarization state (fig. 2).

With respect claim 4, Brophy discloses the polarization rotator comprises a half-wave plate (fig. 2).

With respect claim 5, Brophy discloses the birefringent crystal comprises a yttrium vanadate crystal (col. 4, lines 63-65) (fig. 1).

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With respect to claims 11-14 and 16, it is noted that the references do not expressly disclose the exact method of using the apparatus as limited by claims 1-3, 9, and 10. However, these method steps do not require any additional structure beyond that taught or suggested by the references and stated supra. Therefore, at the time the invention, it would have been obvious to one of ordinary skill in the art to perform this method in light of the structure taught by the references.

Claims 1, 6-8, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stowe et al. (US Patent Application No. 2003/0223748).

With respect claim 1, Stowe discloses an apparatus comprising: a polarization diversity module (415, 413) configured to receive an input optical signal and output a first optical output signal and a second optical output signal, the first and second optical output signals having a same polarization state; a diffraction grating (440) configured to decompose the first optical output signal to constituent first set of component signals and the second optical output signal to constituent second set of component signals; and a light modulator (460) configured to receive and modulate the first set of component signals and the second set of component signals to a predetermined power level (fig. 4D and abstract). Stowe does not expressly disclose the first optical output signal and second optical output signal having a beam center-to-center separation of about 2.5mm and a beam diameter of about 1.6mm as measured at about 13.5% peak amplitude of the beam. However, absent a showing of criticality, at the time the invention was made it would have been obvious to one of ordinary skill to choose such beam parameters. One would have been motivated to do this to provide a large enough separation to eliminate cross-talk

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of the two output beams and to provide an optimized beam diameter that is large enough to allow adequate resolution of the signal without requiring a very large, expensive birefringent crystal and corresponding system.

With respect to claim 6, Stowe discloses the light modulator comprises a grating light valve.

With respect to claim 7, Stowe discloses the light modulator comprises a micro electromechanical system (MEMS) component (fig. 4D).

With respect to claim 8, Stowe discloses the MEMS component comprises an array of deflectable ribbon structures (500, 501, 502) configured to reflect or diffract incident light (fig. 5A-5D).

With respect to claim 15, it is noted that the references do not expressly disclose the exact method of using the apparatus as limited by claims 1 and 6-8. However, these steps do not require any additional structure beyond that taught or suggested by the references and stated *supra*. Therefore, at the time the invention, it would have been obvious to one of ordinary skill in the art to perform this method in light of the structure taught by the references.

### ***Conclusion***

Applicant is advised that the rejections stated *supra* are dependent of the information generally available to one of ordinary skill. If the applicant submits convincing evidence that the parameters claimed provide unexpected results, the rejections may be withdrawn. See MPEP §716.02 - §716.02(g) for a discussion of criticality and unexpected results.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Consilvio whose telephone number is (571) 272-2453. The examiner can normally be reached on Monday thru Friday, 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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